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CR9808-C1
Revision 0

CONSTRUCTION SPECIFICATION FOR

LOW LEVEL RADIOACTIVE METAL WASTE STORAGE PADS

Work Order CR9808

Prepared By:

Kaiser Engineers Hanford Company
Richland, Washington

For the U.S. Department of Energy

Contract DE-AC06-87RL10900

APPROVED
Kaiser Engineers Hanford Company (KEH)

Design Engineering	8-4-92 Date	Technical Documents	8-4-92 Date
Safety	8-4-92 Date	Environmental Engineering	8-4-92 Date
Quality Engineering	8/4/92 Date	Construction	8-5-92 Date
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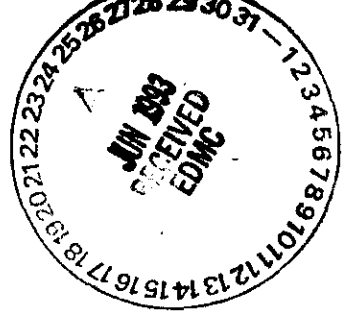

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SECTION 01010

SUMMARY OF WORK

PART 1 - GENERAL

1.1 INTRODUCTION

1.1.1 The Low Level Radioactive Metal Waste Storage Pads are to be located in the 200-West Area of the Hanford Site, Richland, Washington.

1.1.2 This Specification is for the construction of storage unit tie down anchors and fittings, grounding of storage units, metal fabrications, and finish of metals.

1.1.3 Earthwork, road subgrade and asphaltic pavement shall be in accordance with Miscellaneous Paving on Hanford Site, Construction Specification KEH-5276-C1.

1.2 STATEMENT OF WORK

1.2.1 Work Included: The itemization included herein is intended to be broad in scope to identify major elements.

1.2.1.1 Construct 16 concrete tie down anchors, 4 per storage unit.

1.2.1.2 Fabricate and weld fittings to storage units.

1.2.1.3 Furnish and install attaching wire rope to storage units.

1.2.1.4 Ground units.

1.2.2 Work Not Included

1.2.2.1 Construct asphaltic pad approximately 9000 ft^2 including drainage area along 3 sides.

1.2.2.2 Furnish and place storage units.

1.3 SEQUENCE OF WORK

1.3.1 Work shall be accomplished in the following sequence.

1.3.1.1 Earthwork, pad subgrade, and placing of hot-laid asphaltic concrete (by others).

1.3.1.2 Placement of storage units (by others).

1.3.1.3 Concrete tie down anchors.

1.3.1.4 Storage unit tie down fittings.

1.3.1.5 Tie down fitting finish.

1.3.1.6 Install tie down cables.

1.3.1.7 Ground storage units.

1.4 DRAWINGS

1.4.1 The Drawing which describes the work covered by the Contract Documents is H-2-815134.

END OF SECTION

SECTION 03300

CAST-IN-PLACE CONCRETE

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 Reference Standards and Specifications: The following standards and specifications, including documents referenced therein, form part of this Section to extent designated herein.

1.1.1.1 American Concrete Institute (ACI)

ACI 301-89	Specifications for Structural Concrete for Buildings
ACI 305R-89	Hot Weather Concreting
ACI 306R-88	Standard Specification for Cold Weather Concreting

1.1.1.2 American Society for Testing and Materials (ASTM)

A 185-90a	Standard Specification for Steel Welded Wire Fabric, Plain, for Concrete Reinforcement
A 615-90	Standard Specification for Deformed and Plain Billet-Steel Bars for Concrete Reinforcement
C 94-90	Standard Specification for Ready-Mixed Concrete

1.1.1.3 National Ready Mixed Concrete Association (NRMCA)

January 1, 1984 (Fourth Revision)	Certification of Ready Mixed Concrete Production Facilities

1.2 SUBMITTALS: Not Used.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Concrete

2.1.1.1 Compressive strength: 3,000 psi.

2.1.1.2 Mixing: In accordance with ASTM C 94.

2.1.1.3 Delivery: In accordance with ASTM C 94.

2.1.2 Reinforcing Steel Bars: ASTM A 615, deformed, Grade 60.

PART 3 - EXECUTION

3.1 INSTALLATION

3.1.1 Reinforcing Steel

3.1.1.1 Tie bars to prevent displacement during placement of concrete.

3.1.1.2 Do not force reinforcing bars into concrete after initial set has started.

3.1.1.3 Place reinforcing steel as shown or noted on the Drawings.

3.1.2 Concrete

3.1.2.1 Before placing concrete:

a. Obtain approval of "Pour Slip" by KEH. "Pour Slip" shall include appropriate reference to specific portion of structure to be placed, maximum size of coarse aggregate, design strength, admixture, and slump. "Pour Slip" forms can be obtained from KEH.

b. For each truck load of concrete, deliver "Trip Ticket" to KEH. "Trip Ticket" shall contain information listed in ASTM C 94, subparagraphs 16.1.1 through 16.1.10, and include water/cement ratio.

3.1.2.2 Placing concrete against earth: Place on or against firm, damp surfaces free of frost, ice, and free water. Dampen earth surfaces to receive fresh concrete.

3.2 PROTECTION

3.2.1 Cold weather: Maintain concrete at a temperature of at least 50°F for 72 hours after it is placed. Protect concrete from freezing and rapid temperature drop for not less than 4 days, in accordance with ACI 306R.

3.2.2 Hot weather: Protect exposed concrete surfaces from drying during placement in accordance with ACI 305R.

END OF SECTION

SECTION 05500

METAL FABRICATIONS

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 Reference Standards and Specifications: The following standards and specifications, including documents referenced therein, form part of this Section to extent designated herein.

1.1.1.1 American Society of Mechanical Engineers (ASME)

1989 Edition, w/Addenda through Dec 1990	ASME Boiler and Pressure Vessel Code
Section IX	Qualification Standard for Welding and Brazing Procedures, Welders, Brazers, and Welding and Brazing Operators

1.1.1.2 American Society for Testing and Materials (ASTM)

A 36-90	Standard Specification for Structural Steel

1.1.1.3 American Welding Society (AWS)

D1.1-90	Structural Welding Code - Steel

1.2 SUBMITTALS: Not Used.

1.3 QUALITY ASSURANCE

1.3.1 Qualification of Welding Personnel and Procedures

1.3.1.1 Personnel and procedures for welding structural steel shall have been qualified in accordance with AWS D1.1 before welding. Qualification in accordance with ASME Section IX may be substituted for this requirement.

1.3.1.2 Maintain file of welding procedure specifications, procedure qualification records, and welder performance qualification test results at jobsite for review by KEH.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Deliver metal fabrications to jobsite at time convenient for installation. If exposed to inclement weather, protect fabrications with paper, plastic, or other weatherproof covering and store off ground.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Plates and Bars: ASTM A 36.

2.1.2 Paint: See Section 09900.

2.1.3 Wire anchor cable: See Drawing.

2.1.4 Ground rods and cable: See Drawing.

2.2 FABRICATION

2.2.1 General

2.2.1.1 Verify measurements and take field measurements necessary before fabrication. Provide miscellaneous bolts, anchors, and connections necessary for completion of metal fabrications. Cut, reinforce, drill, and tap metal fabrications shown to receive finish hardware and similar items. Weld connections as shown on Drawing.

2.2.1.2 Workmanship: Form metal fabrications to shape and size, with sharp lines, angles, and true curves. Drilling and punching shall produce clean, true lines and surfaces. Execute and finish work in accordance with Fabrication Drawings.

2.2.1.3 Jointing and intersections: Accurately made, tightly fitted, and in true planes with adequate fastenings.

2.2.1.4 Perform welding of steel connections in accordance with AWS D1.1, using E70XX electrodes.

2.2.2 Miscellaneous Steel Items: Supply ground rods, ground cable, anchor cable, U-bolts, and other fabrications as shown on Drawing. Fabricate parts from standard structural sections or shapes, to sizes required. Wherever miscellaneous parts are exposed, grind edges, corners, and rough cuts smooth and free of snags. Shop paint parts except those to be embedded in concrete or masonry, or those which require other specific finishes.

2.2.3 Finishes: Prime ferrous metal in accordance with Section 09900. Do not coat members to be embedded in concrete or masonry, surfaces and edges to be field welded, or items to be galvanized.

PART 3 - EXECUTION

3.1 INSPECTION: Examine areas where metal fabrications are to be installed and notify KEH in writing of conditions detrimental to proper and timely completion of work. Do not proceed with work until unsatisfactory conditions have been corrected in manner compatible with requirements for installation.

3.2 INSTALLATION

3.2.1 Install metal fabrications plumb, level, or as shown on the Drawing.

3.2.2 Make field connections as neatly as possible with joints flush and smooth. Grind smooth exposed field welds and polish before field painting.

3.2.3 After installation has been approved, clean and paint connections with primer. Touch-up shop prime coat wherever damaged.

END OF SECTION

SECTION 09900

PAINTING

PART 1 - GENERAL

1.1 REFERENCES

1.1.1 Reference Standards and Specifications: The following standards and specifications, including documents referenced therein, form part of this Section to extent designated herein.

1.1.1.1 Painting and Decorating Contractors of America (PDCA)

1984	Architectural Specification Manual

1.1.1.2 Federal Specifications (FS)

TT-P-645B	Primer, Paint, Zinc Molybdate, Alkyd Type

1.1.1.3 Steel Structures Painting Council (SSPC)

Surface Preparation Specifications

SSPC-SP 2-89	No. 2 Hand Tool Cleaning
SSPC-SP 3-89	No. 3 Power Tool Cleaning

1.2 SUBMITTALS: Not Used.

1.3 QUALITY ASSURANCE

1.3.1 Use manufacturers and products listed in PDCA Architectural Specification Manual, Chapter 7.

1.4 DELIVERY, STORAGE, AND HANDLING

1.4.1 Packing and Shipping: Deliver materials to site in sealed, original, labeled containers, each bearing manufacturer's name, product type, brand name, color designation, and mixing and reducing instructions.

1.4.2 Acceptance at Site

1.4.2.1 Verify undamaged condition.

1.4.2.2 Do not open containers until approved by KEH.

1.4.3 Storage and Protection

1.4.3.1 Store and mix materials at minimum ambient temperature of 45°F in well ventilated and heated area or areas in accordance with manufacturer's recommendations.

1.4.3.2 Take precautions to prevent fire hazards and spontaneous combustion. Place cotton waste, cloths, and hazardous materials in containers and remove from site daily.

1.4.3.3 Toxic, acetic, and explosive materials: Take regular appropriate safety precautions in accordance with manufacturer's recommendations.

1.5 PROJECT CONDITIONS

1.5.1 Environmental Requirements

1.5.1.1 Temperature

a. Unless otherwise recommended by paint manufacturer, apply coatings when ambient and surface temperatures are between 45 and 95°F except water-thinned paints and other special coatings. Apply water-thinned paints when ambient and surface temperature is between 50 and 90°F.

b. Provide temporary heat as required until specified surface and air temperatures exist for required time period. Maintain temporary heat for 24 hours after paint and finish application.

1.5.1.2 Weather

a. Do no exterior work on unprotected surfaces if it is raining or moisture from other source is present or expected before applied finishes can dry or attain proper cure without damage.

b. Allow surfaces to dry and attain required temperatures and conditions specified before proceeding with work or continuation of previously started work.

c. Do not apply finish in areas where dust is being generated.

1.5.1.3 Humidity: Follow manufacturer's directions for extremes.

1.5.1.4 Ventilation: Provide adequate continuous ventilation required for drying various materials as recommended by manufacturer.

PART 2 - PRODUCTS

2.1 MATERIALS

2.1.1 Furnish materials identified in PDCA Architectural Specification Manual, Chapters 5, 6, and 7 for systems scheduled in Article 3.5.

2.1.2 Furnish ready-mixed materials.

PART 3 - EXECUTION

3.1 EXAMINATION

3.1.1 Examine surfaces scheduled to receive finish for conditions that will adversely affect execution, permanence, or quality of work and which cannot be put into acceptable condition through preparatory work included in Article 3.2.

3.1.2 Report in writing to KEH conditions that may affect proper application of finish. Do not begin surface preparation or coating application until defects have been corrected and conditions are made suitable.

3.2 PREPARATION

3.2.1 Protection

3.2.1.1 Protect finished work of other trades.

3.2.1.2 As work proceeds, and upon completion of work, promptly remove spills, splashes, or splatters from products by methods not damaging to affected surfaces.

3.2.1.3 Repair or replace, as directed by KEH, surfaces damaged by painting work.

3.2.2 Surface Preparation: Prepare surfaces in accordance with recommendations of finish material manufacturer and PDCA Architectural Specification Manual, Chapters 3 and 3R, and SSPC-SP2 and SSPC-SP3 for finish system specified.

3.3 APPLICATION

3.3.1 Perform work in accordance with manufacturers directions, PDCA Architectural Specification Manual, and this Section.

3.4 FIELD QUALITY CONTROL

3.4.1 Meet the requirements of PDCA Architectural Manual for "CUSTOM" material and work, unless otherwise specified.

3.5 SCHEDULES

3.5.1 Color: Color shall match color of storage units.

3.5.2 Paint and Finish on Ferrous Metal: Ext. 12-A, Custom Grade, gloss. Rust-inhibitive prime coat shall be in accordance with FS TT-P-645B.

END OF SECTION